

Att'y Dkt. No.: US-109

U.S. App. No: 10/784,986

IN THE CLAIMS:*Kindly rewrite Claims 1-9 as follows, in accordance with 37 C.F.R. § 1.121:*

- 1.(currently amended) A-An isolated protein selected from the group consisting of:
 - (A) a protein which has the amino acid sequence of SEQ ID NO: 4; and
 - (B) a protein which has the amino acid sequence of SEQ ID NO: 4 including substitution, deletion, insertion or addition of one to 20 ~~or several~~ amino acid residues and has lysine decarboxylase activity.

- 2.(currently amended) A-An isolated protein selected from the group consisting of:
 - (A) a protein which has the amino acid sequence of SEQ ID NO: 4; and
 - (B) a protein which has the amino acid sequence of SEQ ID NO:4 including substitution, deletion, insertion or addition of one to 10 ~~or several~~ amino acid residues; ~~whereby said protein~~ and has lysine decarboxylase activity ~~and is at least 90% homologous to SEQ ID NO: 4.~~

- 3.(currently amended) A-An isolated DNA encoding a protein selected from the group consisting of:
 - (A) a protein which has the amino acid sequence of SEQ ID NO: 4; and
 - (B) a protein which has the amino acid sequence of SEQ ID NO: 4 including substitution, deletion, insertion or addition of one to 20 ~~or several~~ amino acid residues and has lysine decarboxylase activity.

- 4.(currently amended) A-An isolated DNA encoding a protein selected from the group consisting of:
 - (A) a protein which has the amino acid sequence of SEQ ID NO: 4; and
 - (B) a protein which has the amino acid sequence of SEQ ID NO: 4 including substitution, deletion, insertion or addition of one to 10 ~~or several~~ amino acid residues; ~~whereby said protein~~ and has lysine decarboxylase activity ~~and is at least 90% homologous to SEQ ID NO: 4.~~

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5.(currently amended) The DNA of claim 3, selected from the group consisting of:

(a) a DNA which has the nucleotide sequence of the nucleotide numbers 684 to 2930 in SEQ ID NO: 3; and

(b) a DNA which is hybridizable with a DNA having the nucleotide sequence of the nucleotide numbers 684 to 2930 in SEQ ID NO: 3 under stringent conditions comprising 1x SSC, 0.1%SDS, at 60°C, and wherein said DNA~~which~~ encodes a protein having lysine decarboxylase activity.

6.(currently amended) The DNA of claim 3, which is ~~derived~~isolated from a ~~chromosome~~the genome of a *Methylophilus* bacterium.

7.(cancelled)

8.(currently amended) A *Methylophilus* bacterium which produces L-lysine, wherein a ~~gene on a chromosome~~polynucleotide on the genome is disrupted, wherein said polynucleotide is selected from the group consisting of having a nucleotide sequence identical to the DNA of claim 3 is disrupted, or and a gene on a chromosome nucleotide sequence having homology to the DNA of claim 3 to such a degree that homologous recombination with the DNA occurs ~~is disrupted, and~~ thereby expression of said ~~gene~~polynucleotide is suppressed and the intracellular lysine decarboxylase activity is reduced or eliminated.

9.(currently amended) A method for producing L-lysine, comprising the steps of culturing the *Methylophilus* bacterium of claim ~~7 or 8~~ in a medium containing methanol as a major carbon source resulting in accumulation of L-lysine in culture, and collecting the L-lysine from the culture.

10.(new) The DNA of claim 4, selected from the group consisting of:

(a) a DNA which has the nucleotide sequence of the nucleotide numbers 684 to 2930 in SEQ ID NO: 3; and

(b) a DNA which is hybridizable with a DNA having the nucleotide sequence of

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the nucleotide numbers 684 to 2930 in SEQ ID NO: 3 under stringent conditions comprising 1x SSC, 0.1%SDS, at 60°C, and wherein said DNA encodes a protein having lysine decarboxylase activity.

11.(new) The DNA of claim 4, which is isolated from the genome of a *Methylophilus* bacterium.

12.(new) A *Methylophilus* bacterium which produces L-lysine, wherein a polynucleotide on the genome is disrupted, wherein said polynucleotide is selected from the group consisting of a nucleotide sequence identical to the DNA of claim 4, and a nucleotide sequence having homology to the DNA of claim 4 to such a degree that homologous recombination with the DNA occurs, and thereby expression of said polynucleotide is suppressed and the intracellular lysine decarboxylase activity is reduced or eliminated.

13.(new) A method for producing L-lysine, comprising the steps of culturing the *Methylophilus* bacterium of claim 12 in a medium containing methanol as a major carbon source resulting in accumulation of L-lysine in culture, and collecting the L-lysine from the culture.